

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

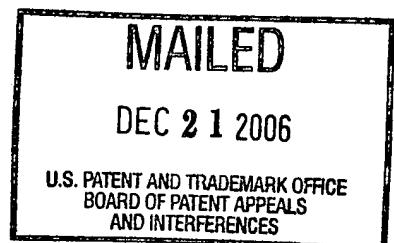
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*Ex parte* NATHANIEL T. BECKER,  
THOMAS S. GREEN, and  
ROBERT L. CHRISTENSEN

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Appeal 2006-3257  
Application 09/215,095  
Technology Center 1600

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ON BRIEF

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Before ADAMS, MILLS, and LEBOVITZ, *Administrative Patent Judges*.  
MILLS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 66-69, 72-76, and 78-107.

Claims 66 reads as follows:

66. A layered granule having a single seed particle, layers of the layered granule comprising:

- a) a protein matrix layered over the seed particle wherein said matrix comprises a mixture of a protein solution or slurry and a solution which is a combination of a sugar or sugar alcohol and a polysaccharide structuring agent; and
- b) a barrier layer or coating layer.

The prior art cited by the Examiner is:

Deleeuw et al. (Deleeuw)	5,254,287	Oct. 19, 1993
Sipos et al. (Sipos)	5,260,074	Nov. 9, 1993
Arnold et al. (Arnold)	5,324,649	June 28, 1994

#### *Grounds of Rejection*

Claims 66-69, 72-76, and 78-107 stand rejected under 35 U.S.C. § 103(a) over Arnold in view of Sipos or Deleeuw.

We affirm this rejection.

#### *Claim Grouping*

Appellants provided no separate argument for individual claims which are the subject of the rejection before us. Therefore, we select claim 66 as representative of the rejected claims. 37 C.F.R. § 41.37(c)(1)(vii) (September 13, 2004).

## *DISCUSSION*

#### *Background*

Appellants claim a layered granule having a single seed particle, layers of the layered granule comprising: a) a protein matrix layered over the seed particle wherein said matrix comprises a mixture of a protein solution or

slurry and a solution which is a combination of a sugar or sugar alcohol and a polysaccharide structuring agent; and b) a barrier layer or coating layer.

According to the specification, page 7, “[b]y burying a protein within a matrix, the protein can be better protected from the twin dangers of attrition and activity loss.” “[I]t has not been possible previously to granulate enzymes in sugar or sugar alcohol matrices, since sugars and sugar alcohols exhibit ‘binder’ characteristics, i.e., they are sticky and tend to plaster particles together . . . .” The specification further discloses that, “it has been found that by addition of a structuring agent to the sugar matrix formula, protein can be applied uniformly to individual seed particles at rapid rates without agglomeration or attrition.” *Id.*

*35 U.S.C. § 103*

Claims 66-69, 72-76, and 78-107 stand rejected under 35 U.S.C. § 103(a) over Arnold in view of Sipos or Deleeuw.

According to the Examiner, Arnold describes an enzyme-containing granule comprising a core having a seed particle, and a protein (enzyme) matrix surrounding the core. Answer, page 3. The enzyme layer may further comprise plasticizers, such as sugars or sugar alcohols. *Id.* Example 1, col. 8, line 49, is an example of a granule comprising an enzyme concentrate containing sorbitol, a sugar alcohol. In addition, the granules of Arnold may contain other adjunct ingredients such as enzyme protecting agents. Col. 7, lines 45-65. Both the core and the enzyme layer can contain a coating comprising a vinyl polymer or vinyl copolymer. Col. 6, lines 25-65.

The Examiner finds that Arnold teaches each of the claimed components except the use of polysaccharides in the protein matrix. Answer, page 3. The Examiner relies on Sipos to make up for this deficiency in Arnold. Sipos teaches the use of starch in enzyme granules as an enzyme stabilizer. Answer, page 4. In particular, Sipos describes enzyme stabilizers can be “selected from the group consisting of calcium carbonate, polyvinylpyrrolidone, cellulose acetate phthalate, methylcellulose, starch and modified starches and alginic acid . . .” Sipos, col. 1, lines 51-54.

The Examiner concludes that, as the stability of enzymes granules is a desirable effect, it would be *prima facie* obvious to one of ordinary skill in the art to add an enzyme protective agent to the enzyme matrix, e.g., starch or methyl cellulose described by Sipos, which would meet the limitation of claim 1 of a “polysaccharide structuring agent.” Answer, page 4. The Examiner, in the alternative, relies on Deleeuw for its disclosure that starch is a well known enzyme stabilizer. Column 4, lines 20-24. Answer, page 4.

In view of the above, we agree that the Examiner has provided sufficient evidence to support a *prima facie* case of obviousness, and that the Examiner provides a reason or motivation to add an enzyme stabilizer to the granules of Arnold.

Where the prior art, as here, gives reason or motivation to make the claimed invention, the burden then falls on an Appellants to rebut that *prima facie* case. Such rebuttal can consist of any other argument or presentation

of evidence that is pertinent. *In re Dillon*, 919 F.2d 688, 692-93, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990).

In response, Appellants argue, Arnold “would not provide any motivation to the skilled artisan to use a layer made of a solution of a polysaccharide structuring agent mixed together with a sugar or sugar alcohol added to a protein solution or slurry to form a matrix for the protein.” Brief, page 9.

We are not persuaded by this argument. Each of Sipos and Deleeuw expressly state that polysaccharides can be mixed with enzyme solutions to stabilize them, providing the motivation to one of ordinary skill in the art to use an enzyme stabilizer in conjunction with an enzyme, i.e., in the layer in which the enzyme is located.

In addition, Appellants argue that Sipos does not describe layered granules, and that Deleeuw stabilizes enzymes for use in a bleach environment. Brief, page 10. This rebuttal argument by Appellants is an attack on the individual cited references which fails to acknowledge what the references as a whole would have taught one of ordinary skill in the art at the time of the invention. In particular, Arnold was relied upon by the examiner for teaching a layered granule, and thus the examiner has failed to considered the teachings of each of the references as a whole. Non-obviousness, however, cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references. *In re Merck & Co*, 800 F.2d 1091, 1097, 231 USPQ 375, 380 (Fed. Cir. 1986). The test of obviousness is “whether the teachings of the prior art, taken as a whole, would have made obvious the claimed invention.” *In re Gorman*, 933 F.2d 982, 986,

18 USPQ2d 1885, 1888 (Fed. Cir. 1991). For the reasons discussed in detail above, we conclude that the combined teachings of the cited references would have rendered obvious the layered granules of claim 66. We do not find Appellants have put forth convincing rebuttal argument or evidence to rebut the Examiner’s prima facie case of obviousness. Nor do Appellants rely on unexpected results associated with the claimed mixture. The rejection of claim 66 is affirmed.

## CONCLUSION

The rejection of the claim 66 under 35 U.S.C. § 103(a) over Arnold in view of Sipos or Deleeuw is affirmed. Claims 67-69, 72-76, and 78-107 fall with claim 66.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

**AFFIRMED**

*Donald E. Adams*  
Donald E. Adams )  
Administrative Patent Judge )  
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